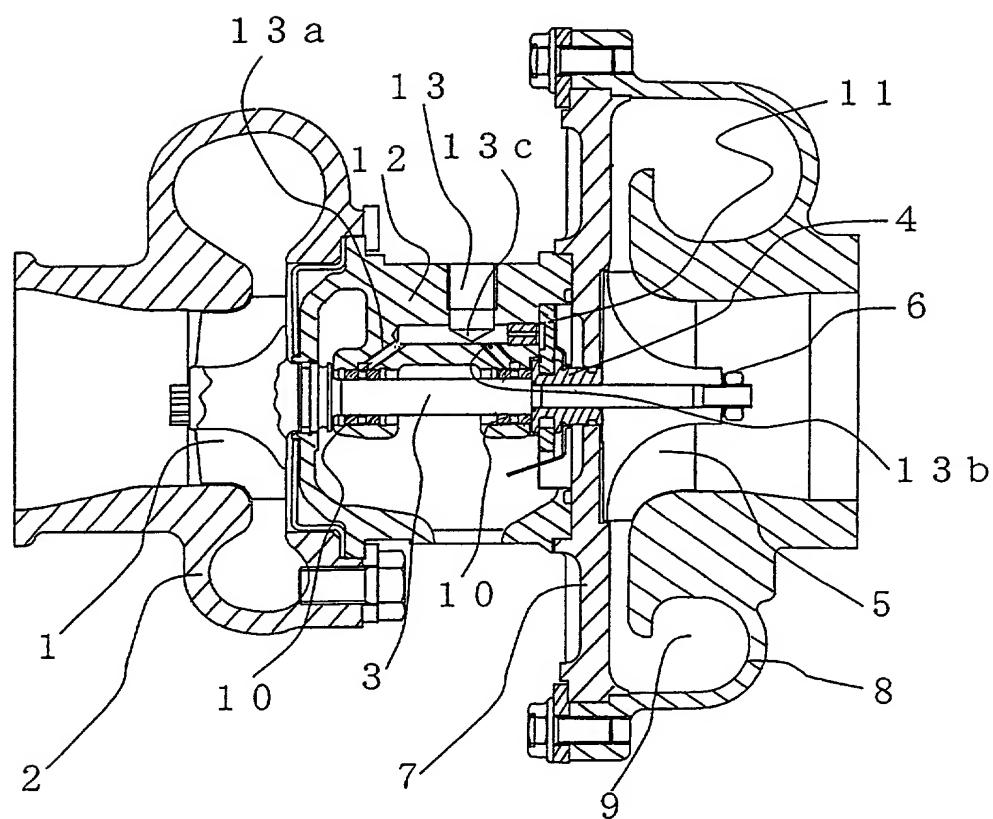


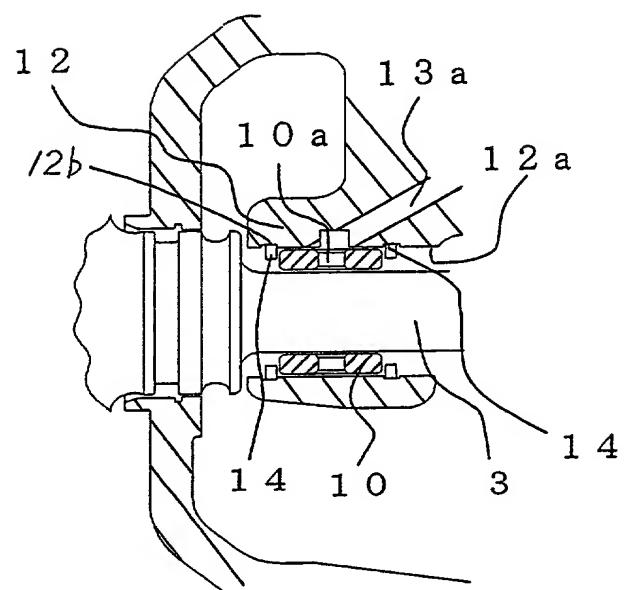
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**FIG. 1**



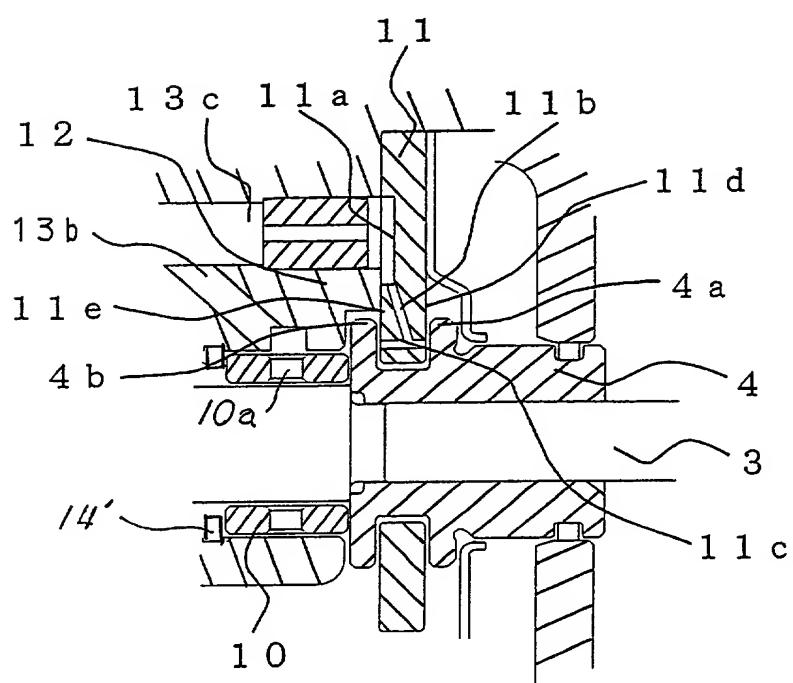
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**FIG. 2**



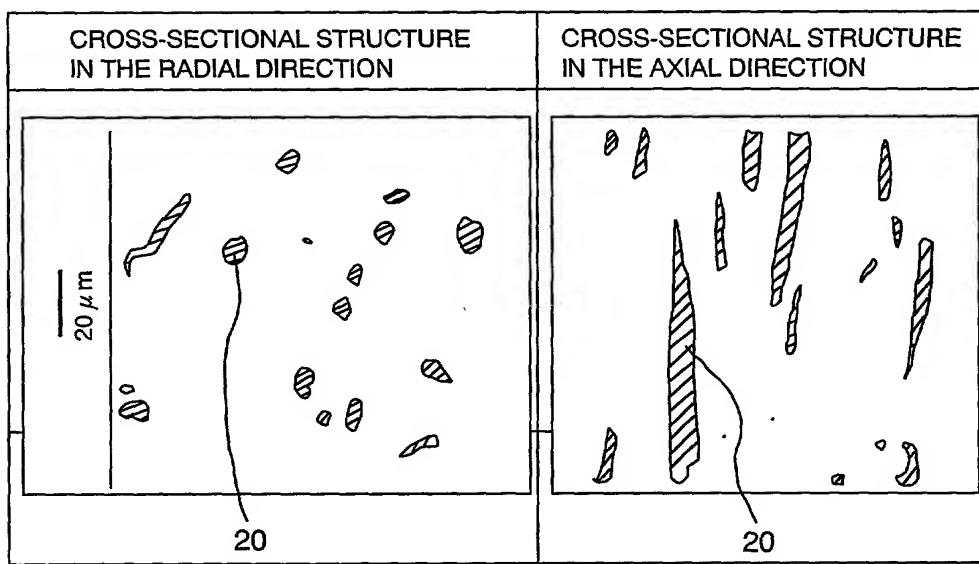
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**FIG. 3**



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**FIG. 4**

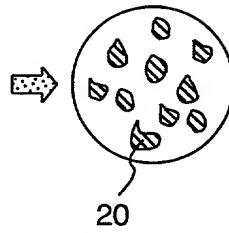
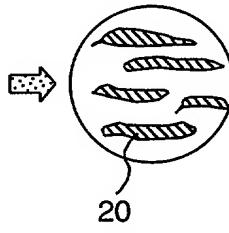
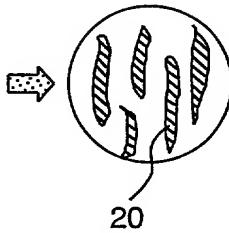


**FIG. 5**

MATERIAL	MAIN CHEMICAL COMPONENTS %							
	Cu	Al	Mn	Si	Pb	Fe	Sn	Zn
A	70.0	—	—	—	6.52	≤ 0.1	—	bal
B	78.2	—	—	—	10.5	0.11	bal	0.83
C	60.8	—	—	—	≤ 0.1	≤ 0.1	—	bal
D	60.2	—	—	—	1.30	≤ 0.1	—	bal
E	62.1	3.05	3.16	0.92	≤ 0.2	—	—	bal
F	58.3	0.69	3.72	1.46	—	—	—	bal

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## FIG. 6

Mn-Si COMPOUND AND DIRECTION OF SLIDING	SLIDING PERPENDICULAR TO THE DIAMETER DIRECTION	SLIDING PARALLEL TO THE LONGITUDINAL DIRECTION	SLIDING PERPENDICULAR TO THE LONGITUDINAL DIRECTION
SKETCH (ARROW:SLIDING DIRECTION)	 20	 20	 20
ABRASION AMOUNT FOR COMPARISON	6.8	4.5	1.0

## FIG. 7

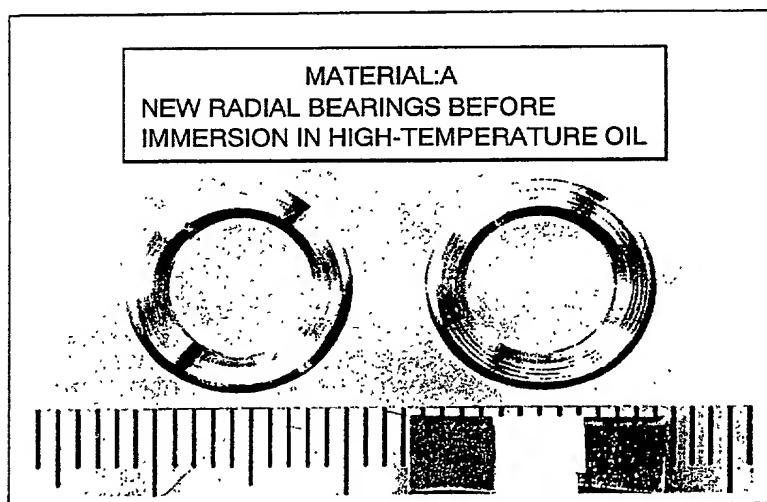
MATERIAL	A	B	C	D	E	F
TEMPERATURE °C FOR EVALUATION			180			250
CHANGE IN WEIGHT FOR COMPARISON	59.2	1065	2.2	1.6	1.3	1.0
JUDGMENT	GOOD	BAD	VERY GOOD	VERY GOOD	VERY GOOD	VERY GOOD

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## FIG. 8

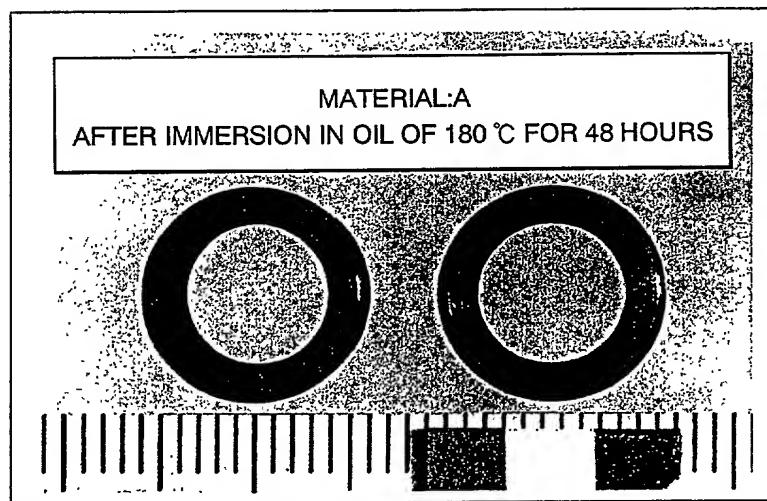
MATERIAL SPEED	A	B	C	D	E	F	REMARKS
1.2 m/s	17	21	16	69	1.7	0.87	LOW-SPEED CONDITION
7.2 m/s	17	15	23	22	1.7	0.92	HIGH-SPEED CONDITION
AVERAGE	17	18	20	46	1.7	0.90	(LOW SPEED+ HIGH SPEED)/2
ABRASION AMOUNT FOR COMPARISON	19	20	22	51	1.9	1.0	
JUDGMENT	GOOD	GOOD	GOOD	BAD	VERY GOOD	VERY GOOD	

## FIG. 9

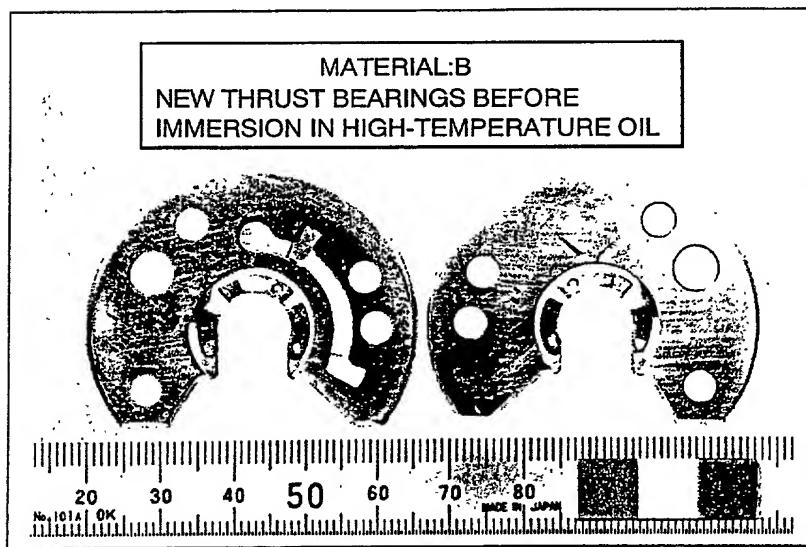


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**FIG. 10**

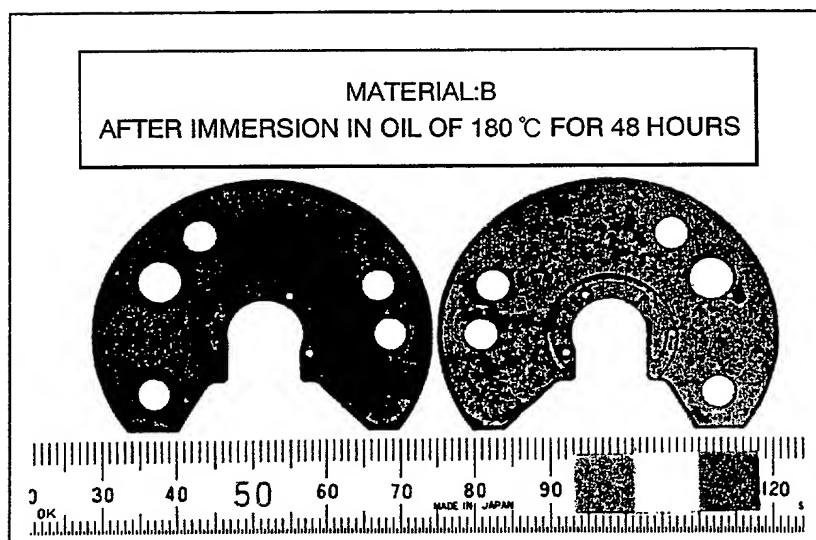


**FIG. 11**

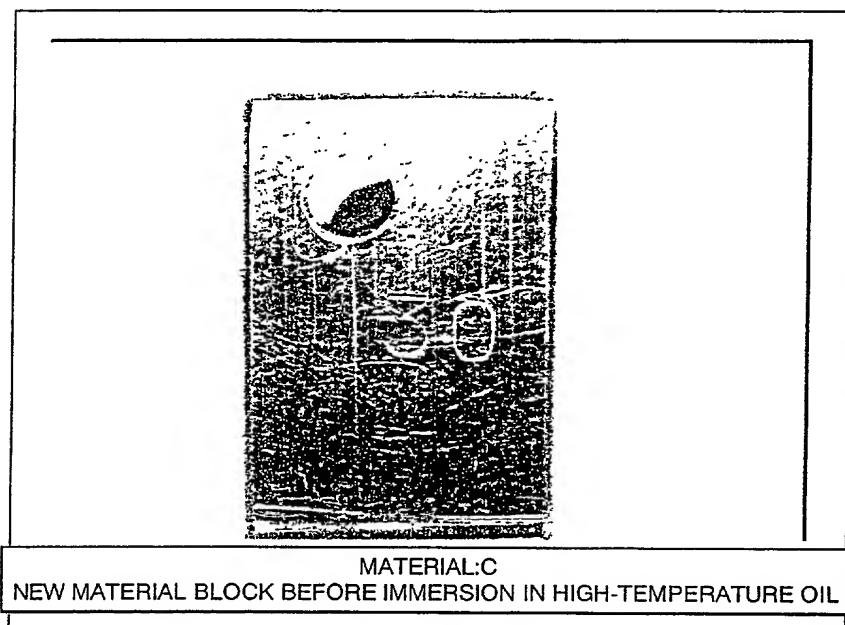


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**FIG. 12**

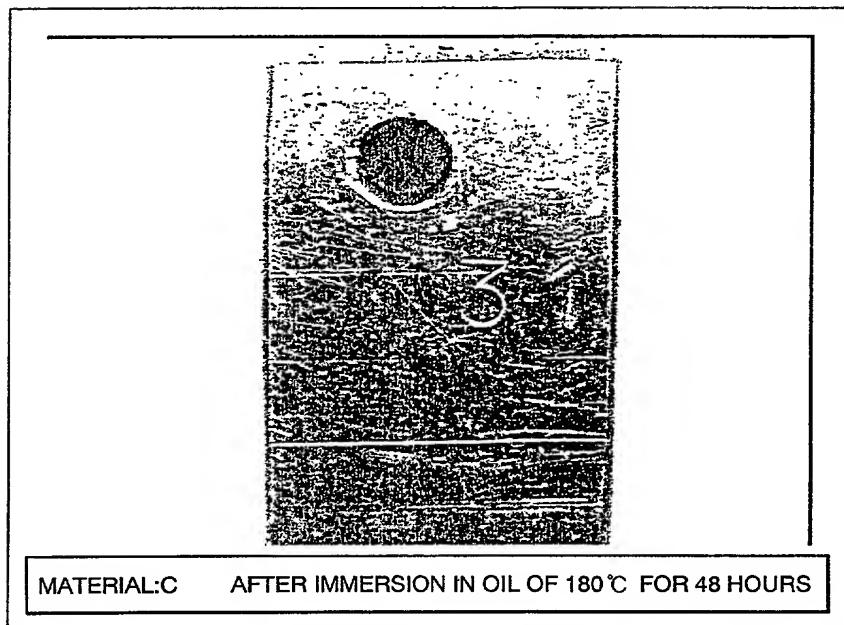


**FIG. 13**

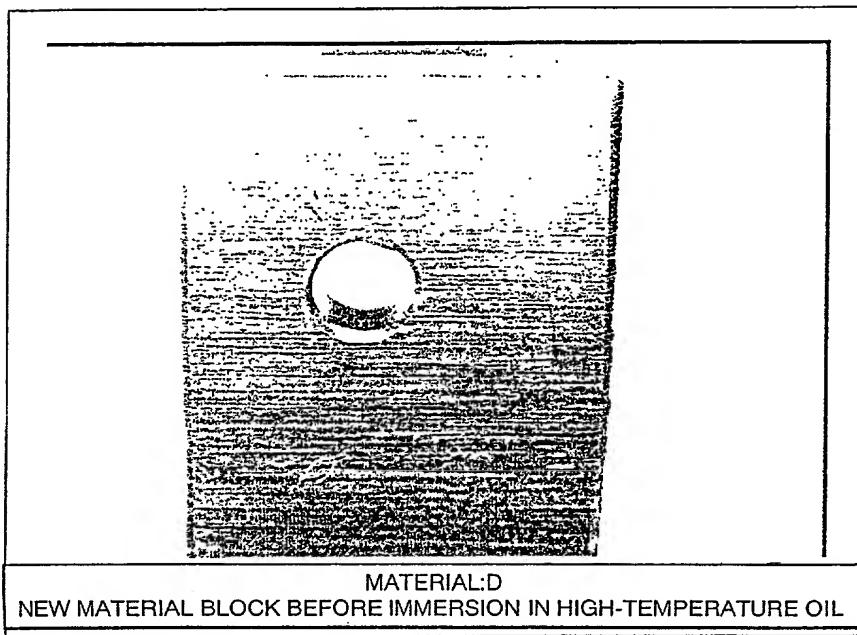


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**FIG. 14**

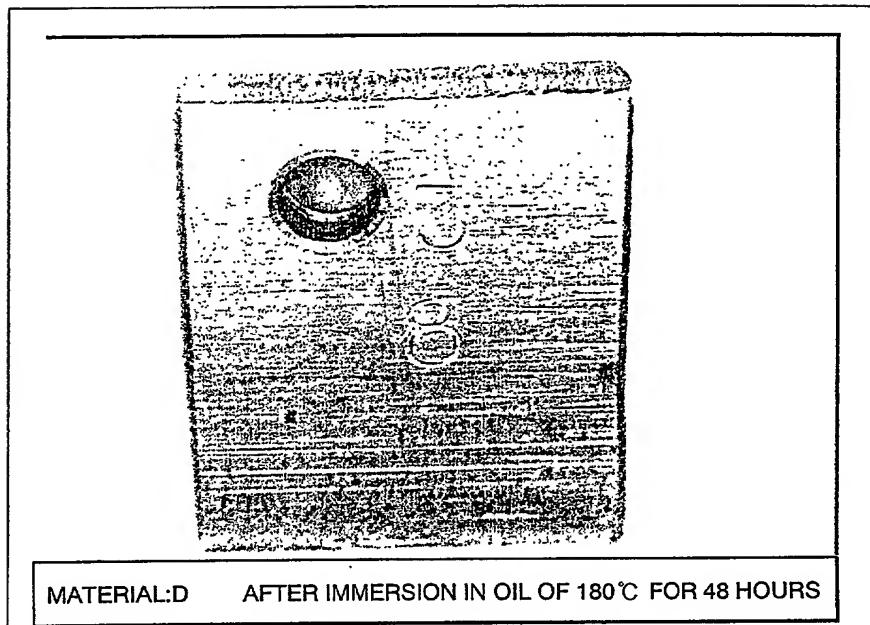


**FIG. 15**

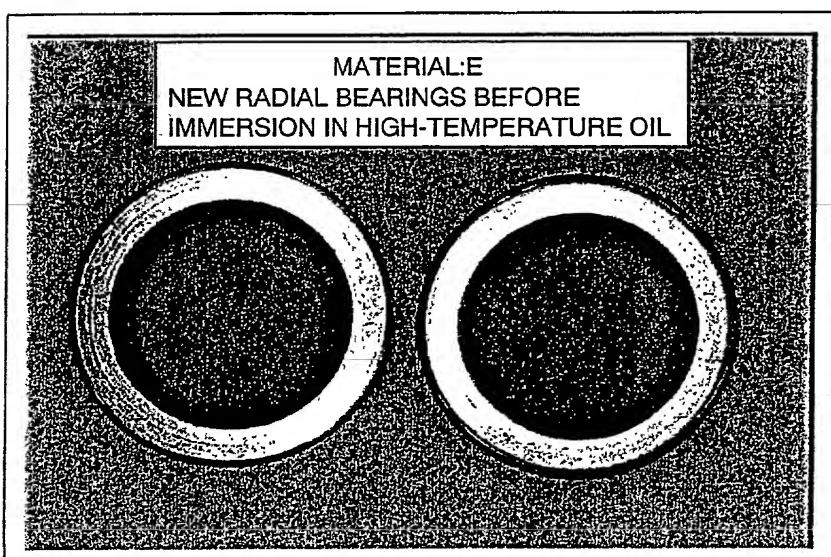


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**FIG. 16**

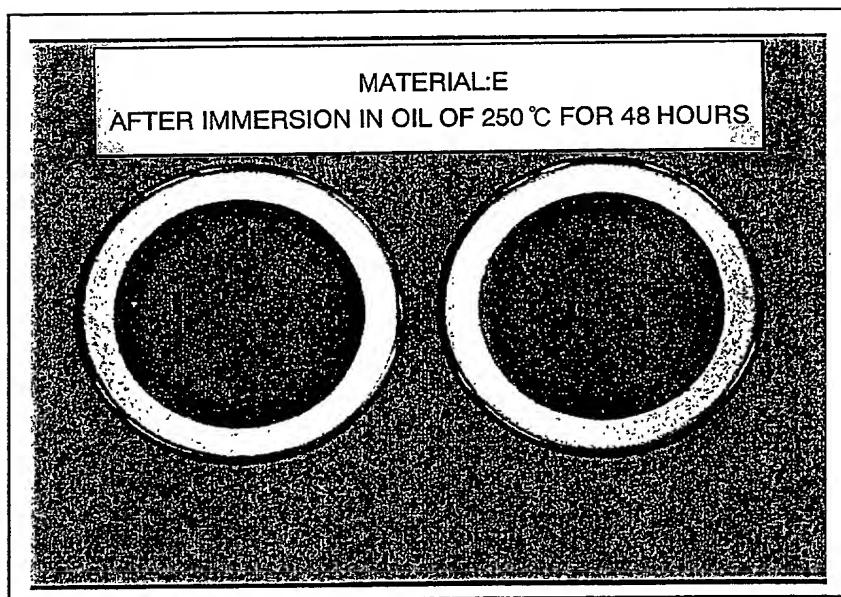


**FIG. 17**



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**FIG. 18**



**FIG. 19**

